SERVICE MANUAL
Level 1&2

NOKIA
N93

RM-55

Transceiver characteristics:

Band: Dual Mode phone for EDGE/GSM 900/1800/1900MHz + WCDMA2100

Camera: 3,2 Megapixel (2048x1536)

Sub camera: CIF (352 x 288) sensor

Display: • Active matrix 2.4" QVGA color display with wide 160 ° viewing angle: 320 x 240 pixels, up to 262,144 colors
1.1" second display: 128 x 36 , up to 65,536 colors

TV out: Via Pop-Port™ connector

WLAN

Bluetooth

IrDA

FM radio

Connector: Pop-Port™ connector

Memory Card: miniSD

Transceiver with BP-6M Li-Ion battery pack

Talk time	Standby	Note
GSM: up to 5.1h WCDMA: up to 3.7h	up to 10 days	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

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TABLE OF CONTENTS

Page

1. INTRODUCTION 3
2. GENERAL REPAIR INFORMATION 4
3. PATHFINDER FOR WORKSHOP STAFF 5
4. EXPLODED VIEW AND COMPONENT DISPOSAL - UPPER BLOCK 6
5. EXPLODED VIEW AND COMPONENT DISPOSAL - LOWER BLOCK 7
6. COMPONENT OVERVIEW 8
7. SPARE PARTS LIST 9
8. SERVICE TOOLS 10
9. SW-UPDATE 12
10. UPPER BLOCK - DISASSEMBLY 13
11. UPPER BLOCK - ASSEMBLY 20
12. LOWER BLOCK - DISASSEMBLY 28
13. LOWER BLOCK - ASSEMBLY 35
14. GONOGO TEST 42
15. BATTERY TEST 43

CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	10.Mai.2006	Initial draft
Approved	1.0	12.06.2006	Approval

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1. INTRODUCTION

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used only by authorized NOKIA service suppliers, and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist.
If you find any errors or if you have further suggestions, please notify NOKIA using the address below:
mailto:cc-ts-rc.documentation@nokia.com

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI–SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES, EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti–static workstation and that an anti–static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re–fitted after servicing and alignment.
5. Ensure all cables and wires are repositioned correctly.

Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

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2. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

- To familiarize oneself with NOKIA product read the tutorials or user guide on www.nokia.com -->Support--> Phones, by selecting the Phone Model.
- Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a film to avoid dust and scratches.
- When cleaning the LCD Module any lint-free cloth can be used (e.g. Micro-Fibre cloth).
- When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
- Mechanical parts (except shielding lids and bent parts), which didn't repair the failure, can be reused, if they are not soldered.
- When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
- Always use original NOKIA spare parts.
- Check the soldering joints of the parts, which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
- Remove redundant soldering flux after repair.
- Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on NOKIA Partner Web Site/NOKIA Online).
- Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
- A SIM card is needed for all GoNoGo tests.
- When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
- Please be aware that some malfunctions could be software related and solved by an update.

- There are several documents available on NOL, which have to be followed:
-
- First, take care for the latest content pages of Service Bulletins, which are always available for each folder on NOKIA Online. This is also important to recognize, if existing documents have become invalid.
-
- The service level indicator at the bottom of each document tells the appropriate destination.

Downloads > Support Library >

1. Instructions
2. General Service Bulletins
3. Product related documents
4. Spare Part Service Bulletins
5. Service Tools Service Bulletins
6. Common Software Service Bulletins
   etc,...

Use General SB-217 as a reference or overview.

Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

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3. PATHFINDER FOR WORKSHOP STAFF

This is the NOL page (NOKIA Online) which is currently available in Europa, Middle East and Africa only!

In addition to the information in this Service Manual, there are several instructions and information, which have to be followed. Main documentation database is NOKIA Online with the purpose of serving different multimedia content, like video clips or interactive tutorials.

It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see "**Latest files in Support Library**"). Every new information has to be processed and implemented as soon as possible.
When logged into NOL you can also find needed information in different folder like:

Support Library → **Phones** →
Service Manuals
Service Bulletins
Software
Repair Information

Level 1&2 e-learning (former NOKIA CarePoint) on NOKIA Online

Former NOKIA CarePoint content, such as	• **Online Troubleshooting** • **Product information** • **Videos – Disassembly/Assembly**	can be found on **NOKIA Online**

Nokia 1100 Technical Training - Microsoft Internet Explorer provided by NOKIA
NOKIA
Connecting People
Nokia 1100 Technical Training
Help
Site map
Glossary
Close
Home
Overview & Guides
Disassembly & Assembly
Troubleshooting
Nokia 1100 Technical Training
This training offers a quick overview of the Nokia 1100 phone and support for how to repair and use the phone.
Overview & Guides
Disassembly & Assembly
Troubleshooting
Get a quick overview of the phone and how to use it.
Learn how to remove and reassemble the mechanical parts of the phone.
Fixes for most common problems with the Nokia phone.
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NOKIA Online
↓
Care Services
↓
Training
↓
Phone Models

Level 1&2 e-learning courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

Overview & Guides	Disassembly & Assembly	Troubleshooting
Basic information about the phone, features and technologies	Instructions how to disassemble and assemble the phone	Step-by-step instructions on how to locate and repair the most common problems with the phone

To reduce the server traffic it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

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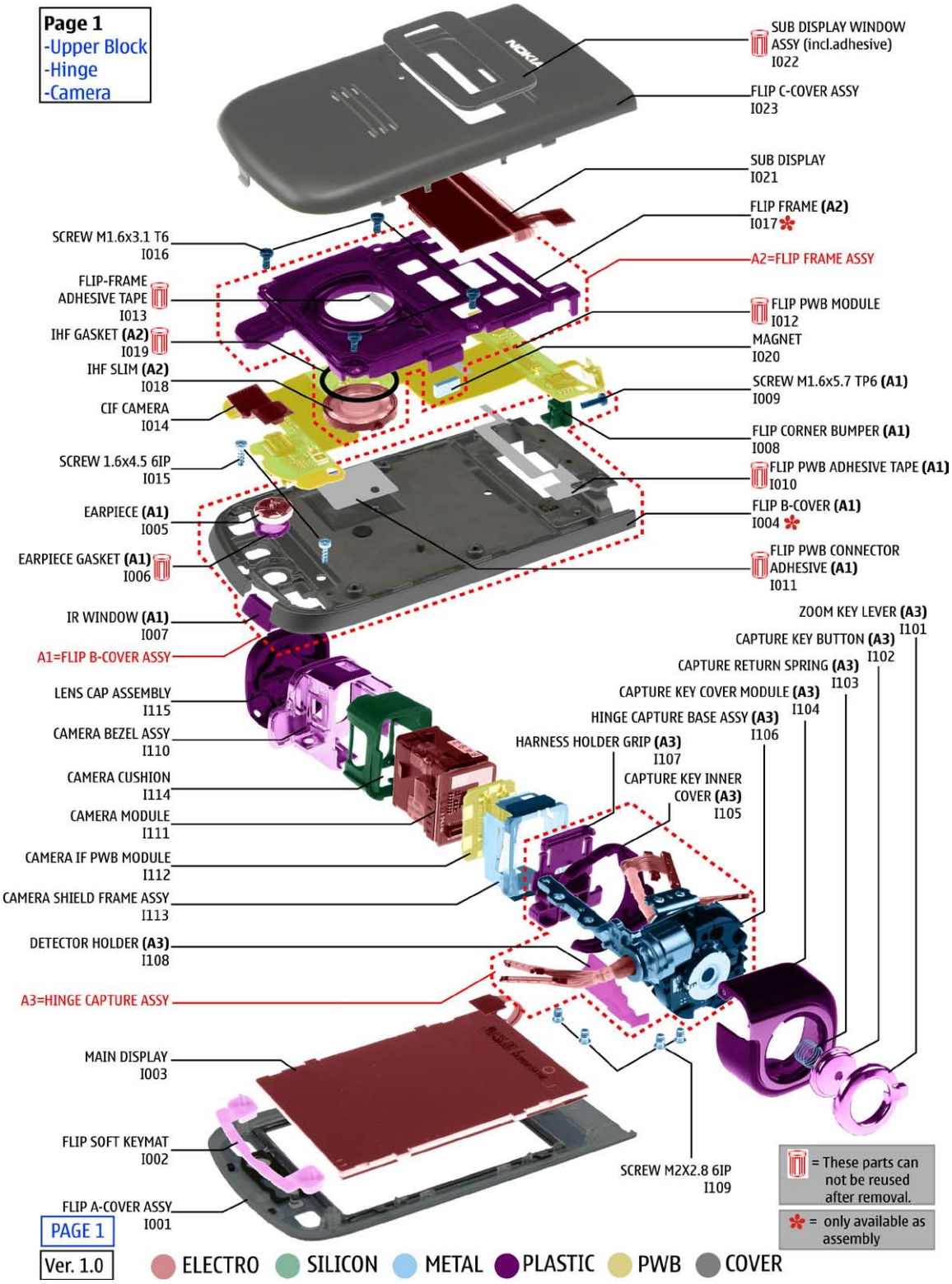
4. EXPLODED VIEW AND COMPONENT DISPOSAL - UPPER BLOCK

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

N93 RM-55 Exploded view - UPPER BLOCK



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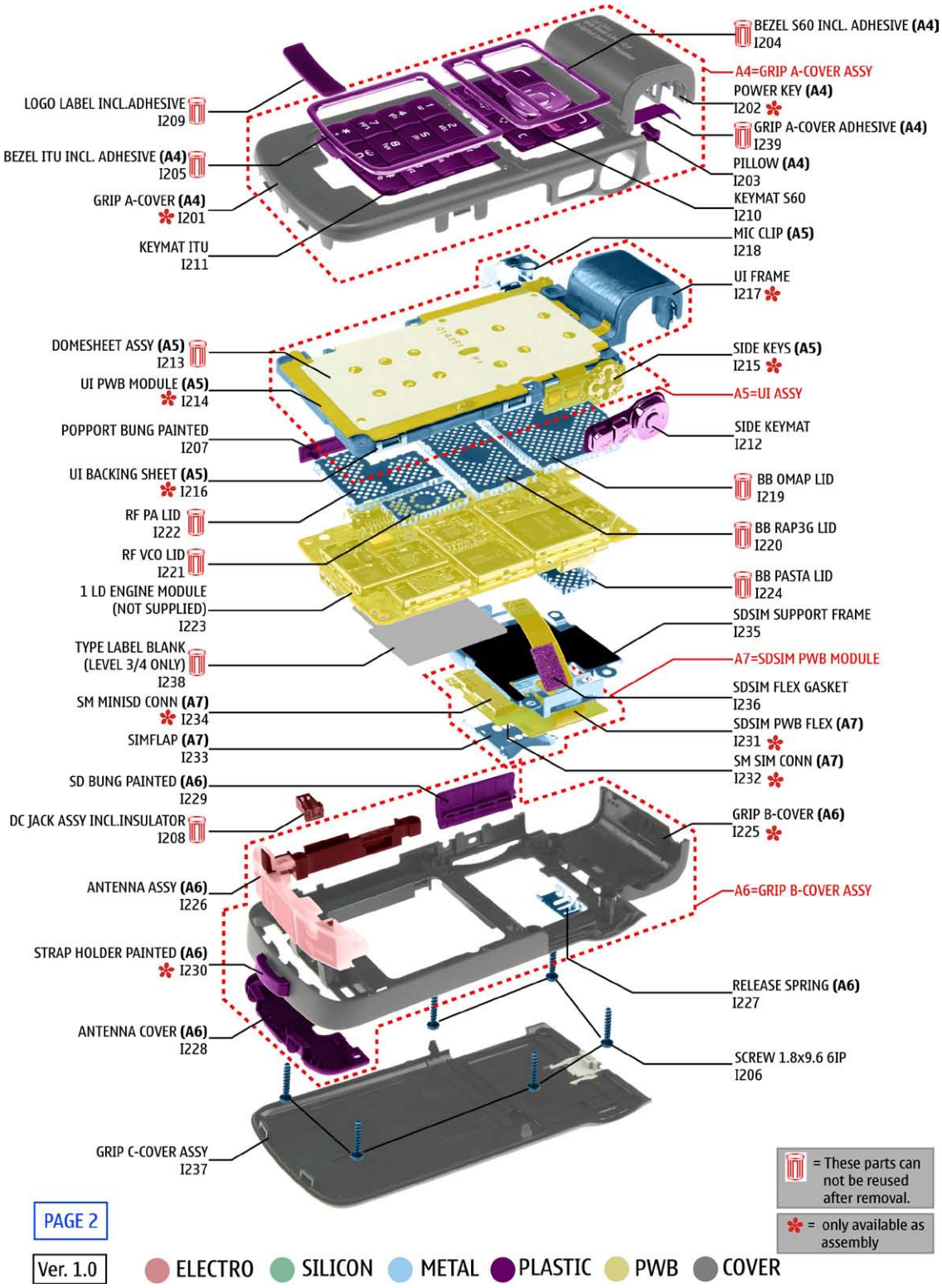
5. EXPLODED VIEW AND COMPONENT DISPOSAL - LOWER BLOCK

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

N93 RM-55 Exploded view - LOWER BLOCK



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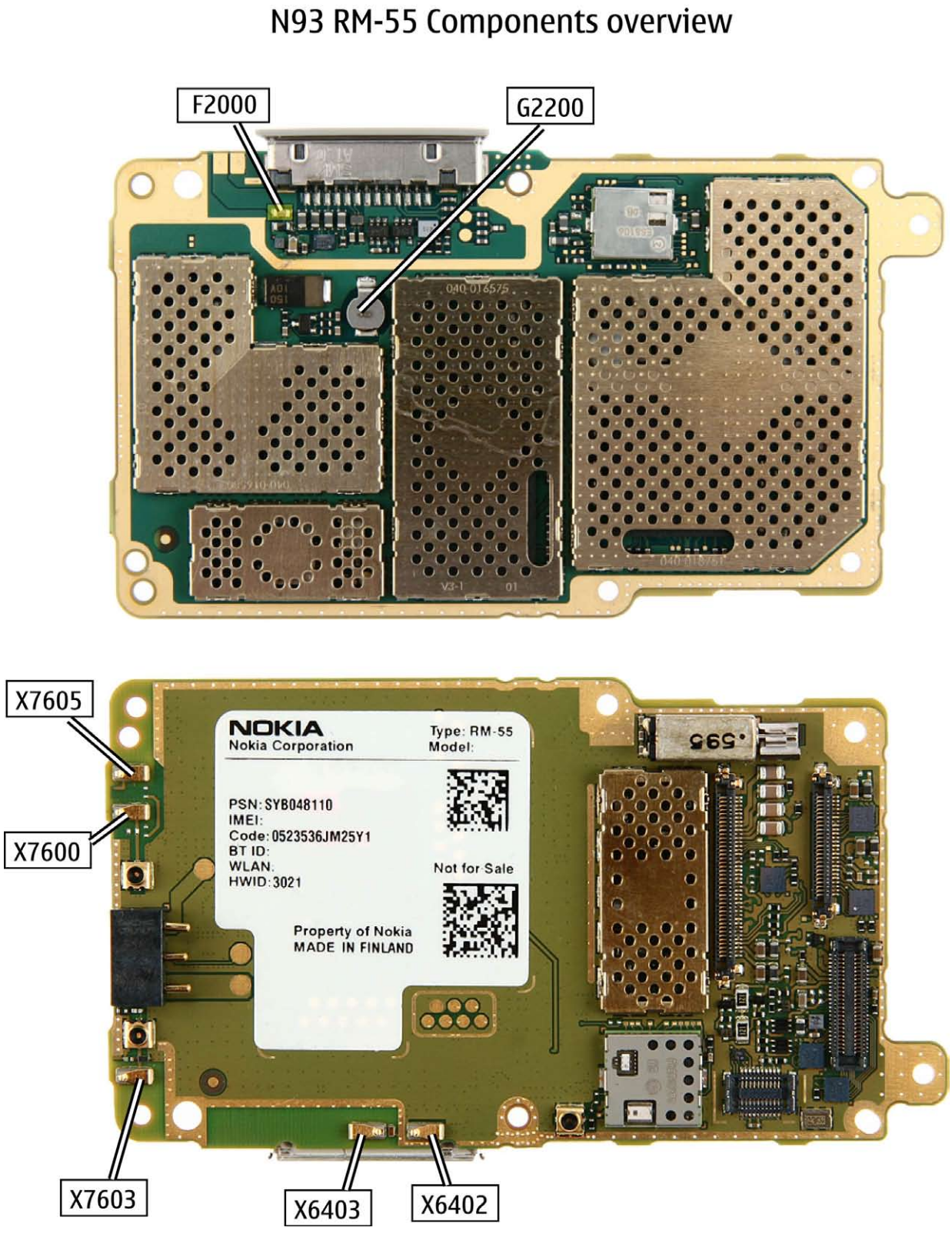
6. COMPONENT OVERVIEW



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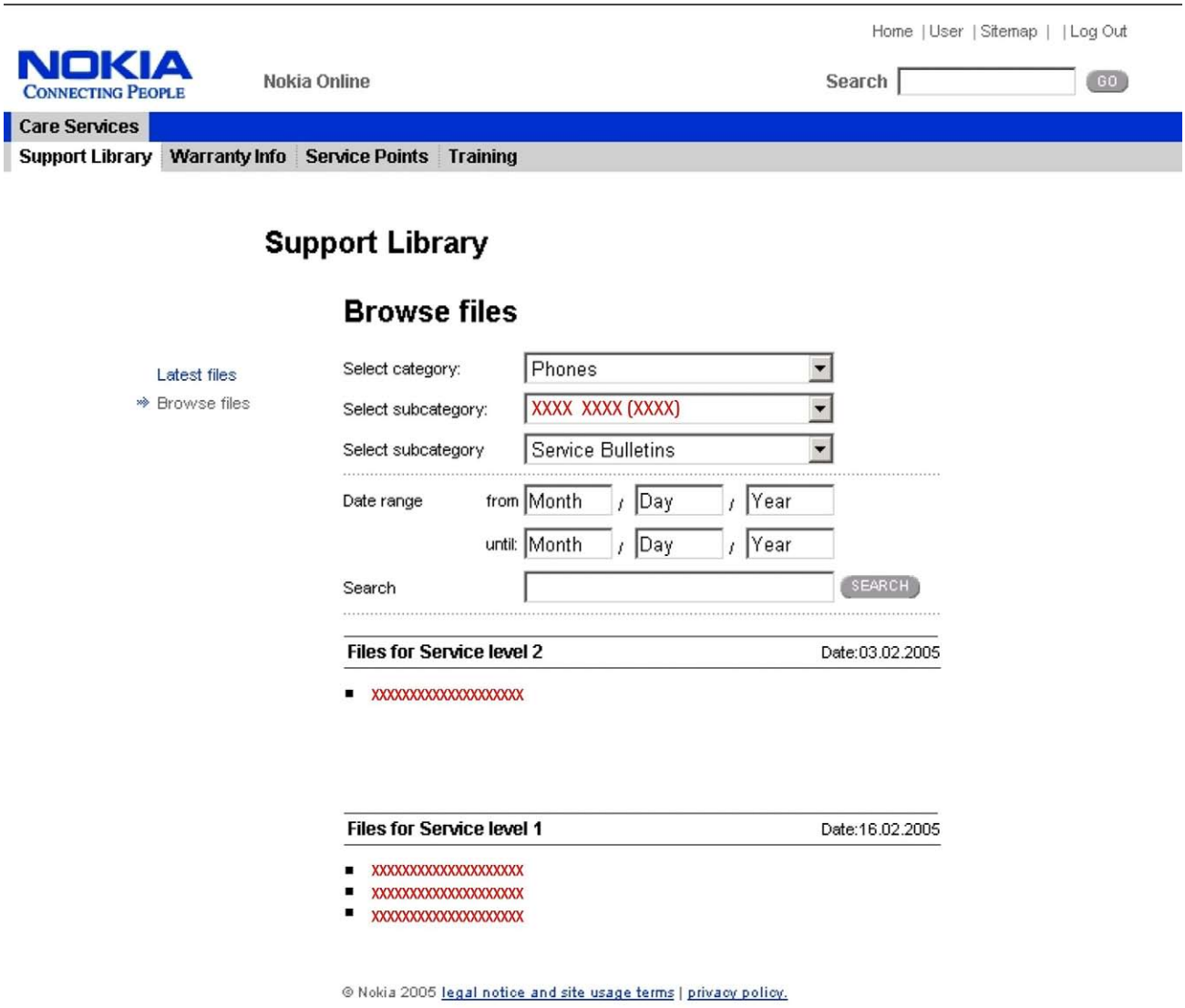
7. SPARE PARTS LIST

Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from NOL!

This will ensure, that you are using up-to-date order codes only.

Therefore Service Bulletins have to be checked from NOL on daily basis.



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8. SERVICE TOOLS

	FLS-4S incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.
	ACF-8 Universal Power Supply is used to power FLS-4S.
	Travel Charger AC-4 Small and lightweight charger for fast charging of your phone battery.
	Internal Battery BP-6M Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.
	Headset HS-23 Small and lightweight stereo headset with handsfree call handling, volume control, push to talk support, and comfortable earpieces for listening to the FM radio or music player.
	CA-53 Service Cable to connect the PC with the Pop-Port™ connector.
	RJ-80 Soldering Jig

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	Lead-free Solder Wire Mandatory for lead-free products (Level 2 only).
	0772040 NMP Standard Toolkit • NOKIA opening tool SRT-6 NOKIA No. 0770431 • Tonichi torque driver NOKIA No. 6901525 • Hoya micro Fibre cloth MX304 • Dastex gloves S, M, XL • Artilux goggles AH166 • Wera bit T5 867/4TX 5x50 • Wera 867/4 6IP; 50mm (Torx 6 PLUS®) • Wera bit T6 867/4TX 6x50 • Wera 867/1 5IP; 25mm (Torx 5 PLUS®) • Wera bit T6 PLUS® 867/4TX 6IP • Facom side cutter 416E • Facom T5 driver SP.14032 • Facom T6 driver SP.14033 • Facom slot screwdriver AEF. 2x35.E • Wetec tweezers 7abb SA-ESD • Wetec tweezers 22 SA-ESD • Wetec tweezers 13 SA-SMD ESD • Wetec tweezers PSF SA-ESD • Wetec ESD brush E1211 • Kaiser Fototechnik airbrush 6315 • Wetec dental tool DEM83266/0 • RS Components Scissors 323-5732

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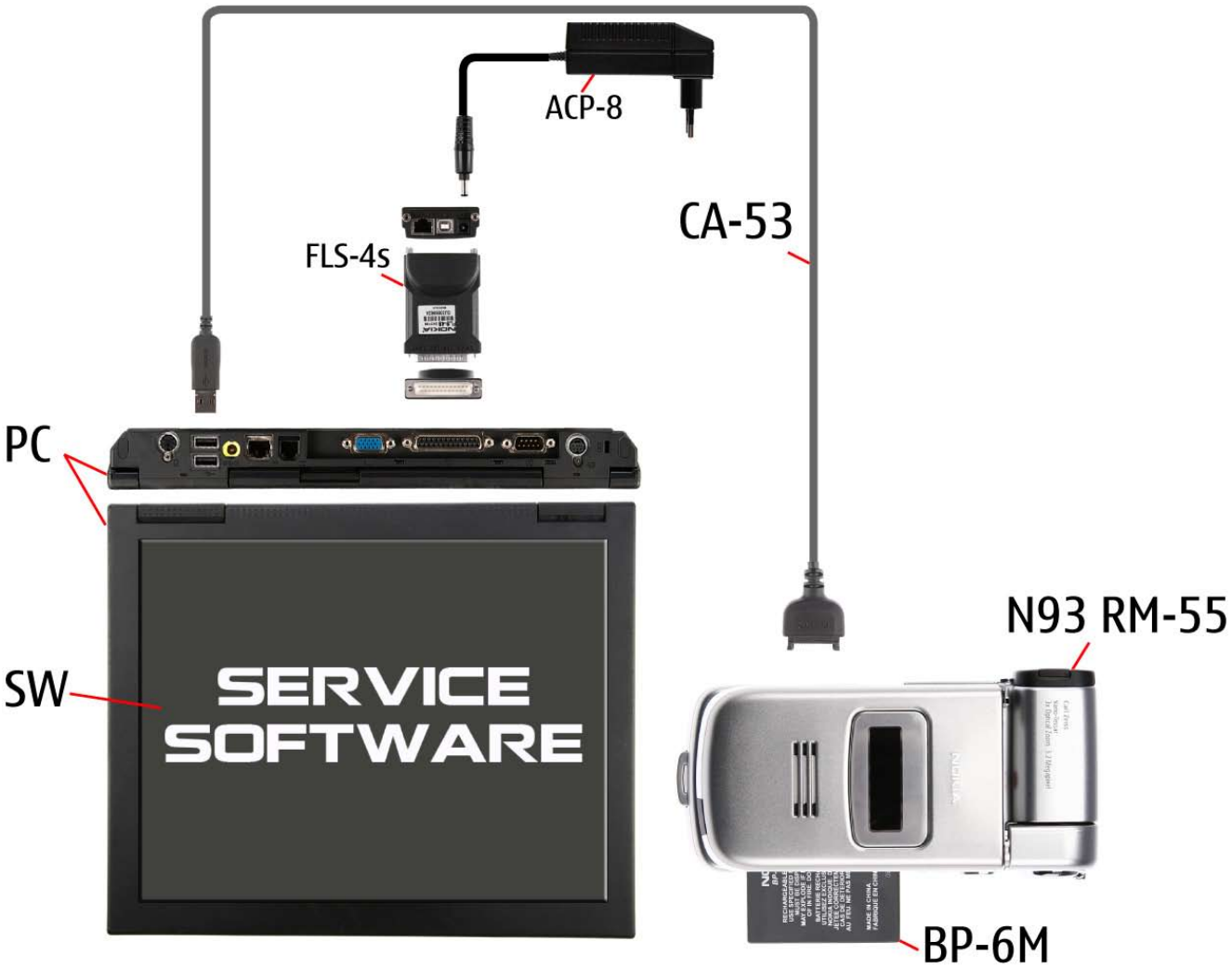
9. SW-UPDATE

Flash Concept – (Point of Sales)

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on
NOKIA Online.



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10. UPPER BLOCK - DISASSEMBLY

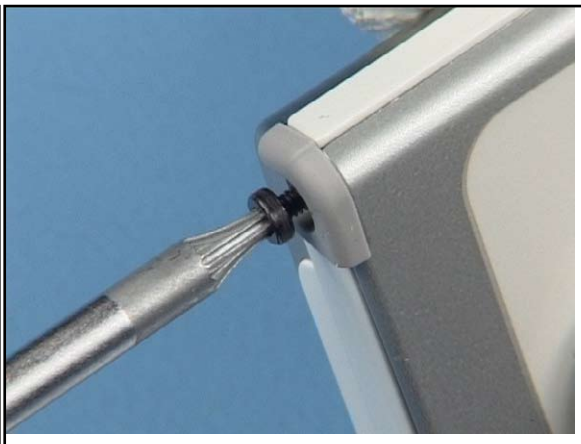
1. Needed tools: The SRT-6, the SS-93, metal tweezers, angled tweezers, a dental pic, a torx driver with a torx plus size 6 bit, and a torx plus driver size 6.

2. Cover all windows with a plastic film.

3. Ensure that no battery is inserted before going on.

4. Pry open the Sub Display Window with the SRT-6.

5. Do not use it again.



6. Undo the screw and remove it.

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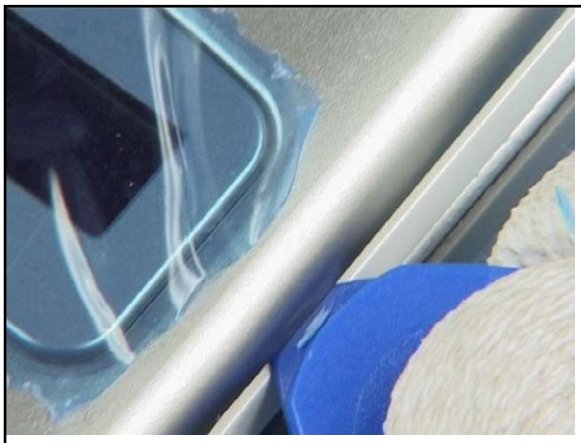
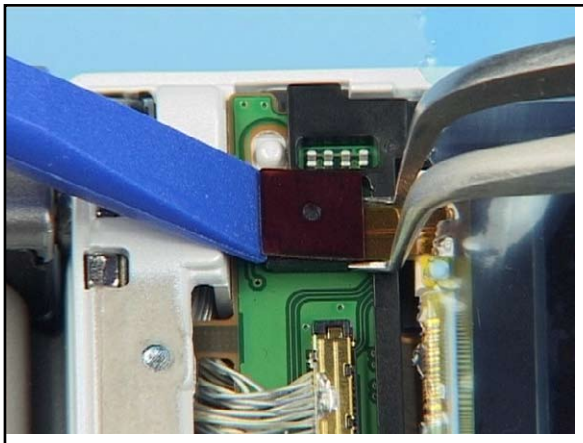


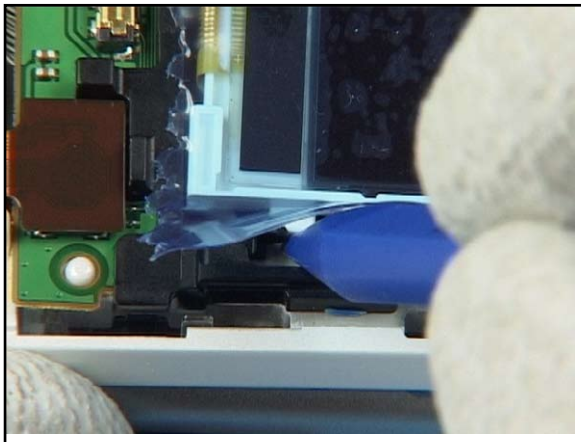
7. Slide along the sides of the Flip C-Cover Assembly, open the two clips as shown.

8. Remove the Flip C-Cover assembly.

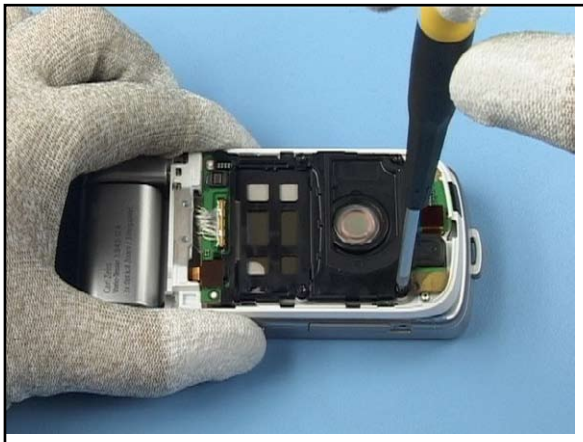
9. Protect the Sub Display with a plastic film.



10. Carefully lever up the flex connector of the display.



11. Gently unlock the snaps of the Sub Display.



12. Unscrew the four torx plus size 6 screws and remove them.

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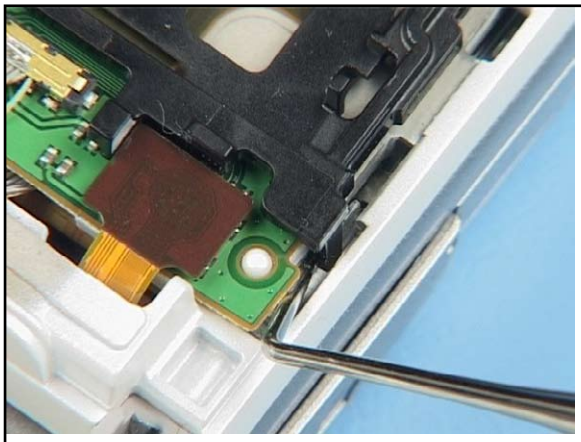
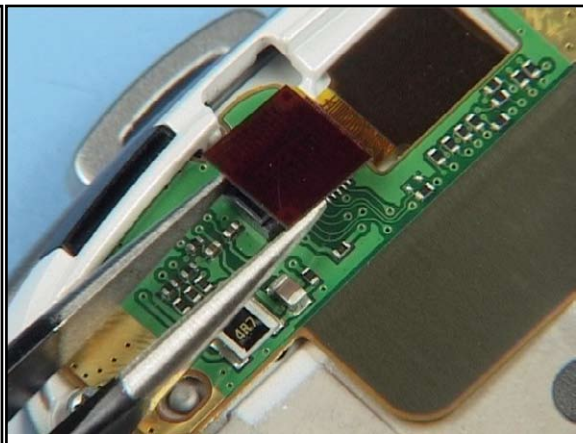


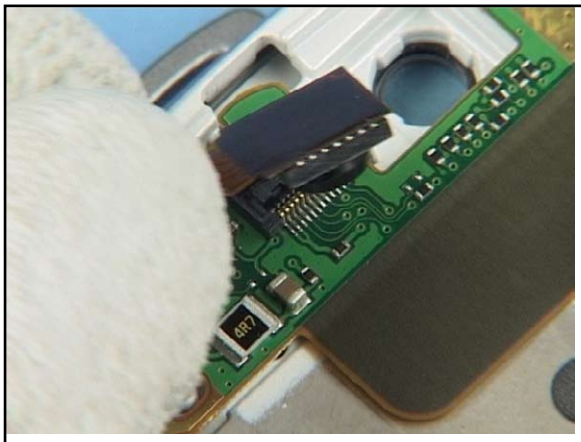
13. Unlock the plastic hooks of the Flip Frame.

14. Remove the Magnet.

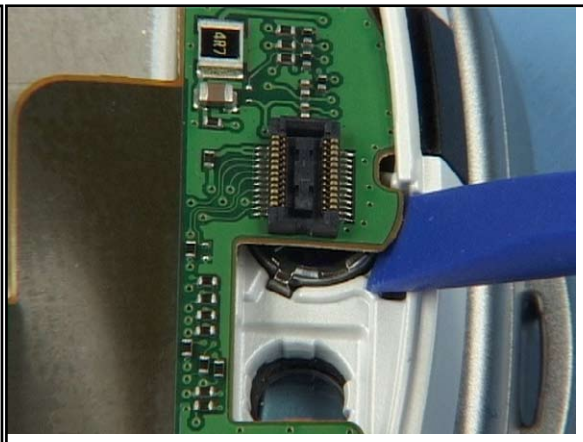
15. Lift out the glued in IHF Slim.



16. Carefully lever up the CIF Camera flex connector.



17. Remove the CIF Camera.



18. Lever up the Flip PWB Module.

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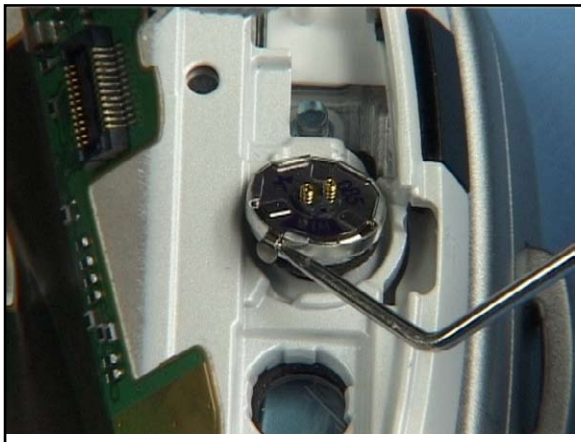
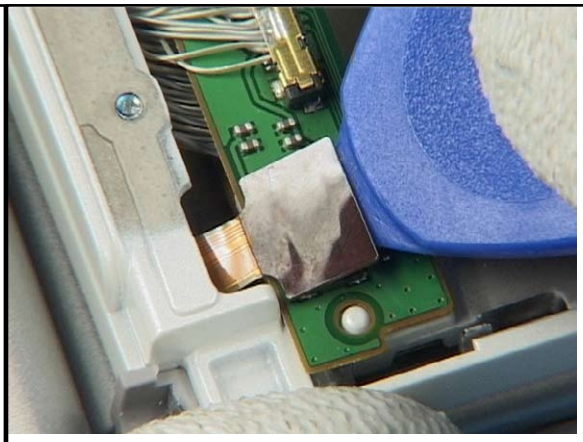
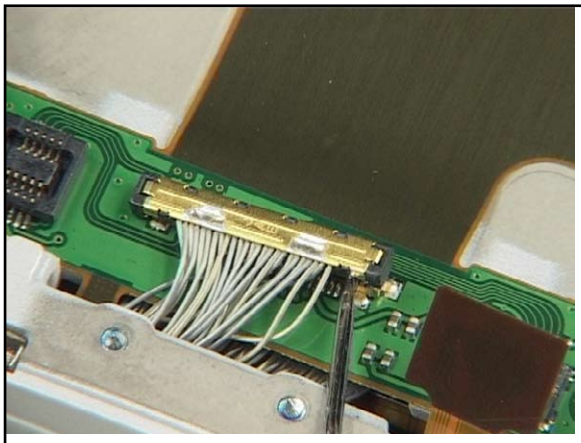


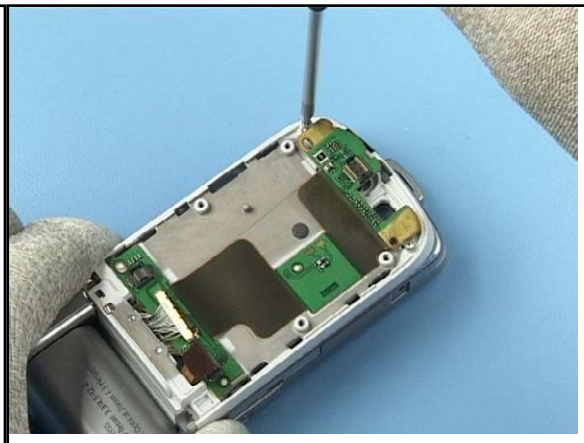
19. Now the glued in Earpiece can be removed easily.



20. Open this flex connector evenly.



21. Gently lever up the connector with the dental pic.



22. Undo both screws and remove them.

23. Open the assembly and remove the protection film.

24. Push out the Flip A-Cover together with the Main Display.

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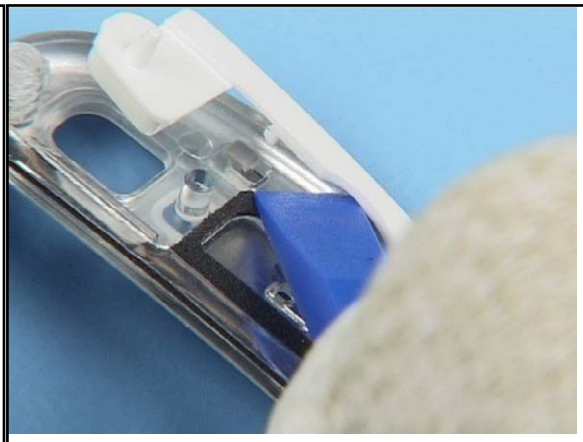
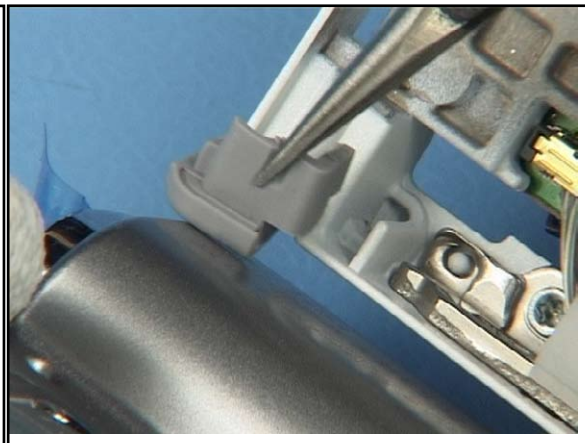
25. Protect the display with a plastic film.

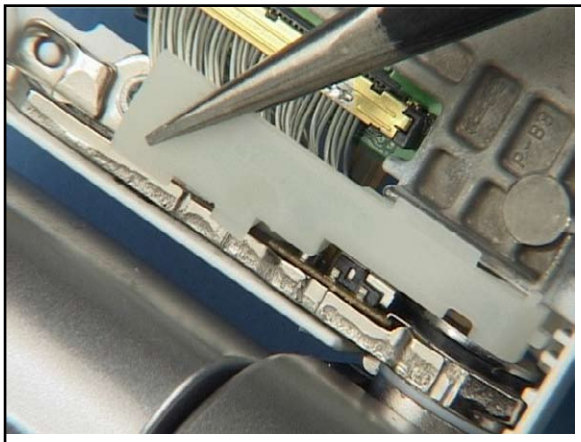


26. Carefully lever out the Flip Soft Keymat.

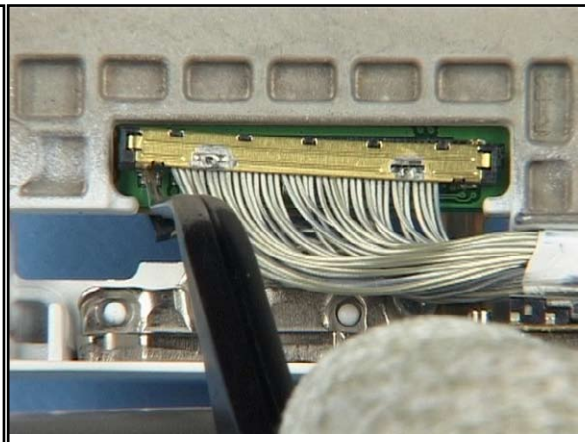
27. Remove the IR Window.



28. Pull out the Flip Corner Bumper.



29. Mind the cables while removing the Detector Holder with tweezers.



30. Use the angled tweezers for levering out the connector as shown.

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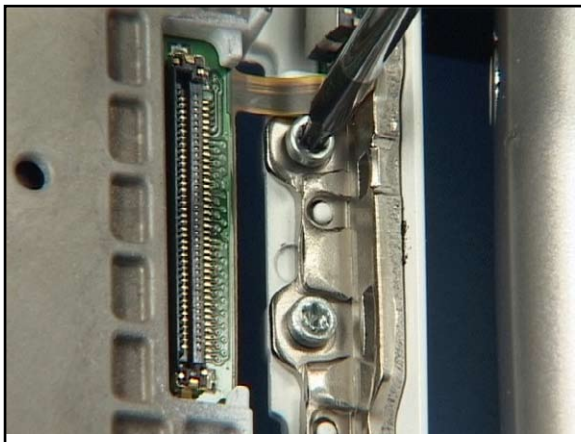
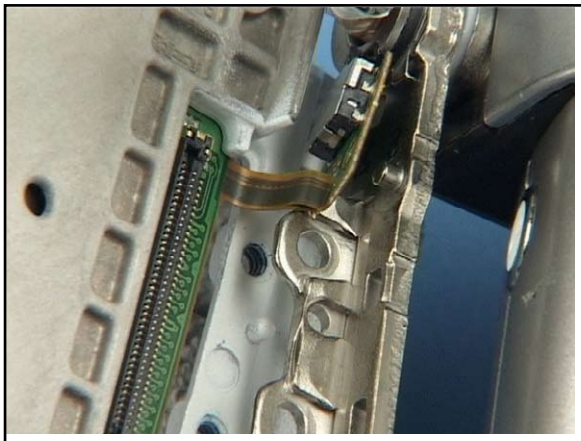
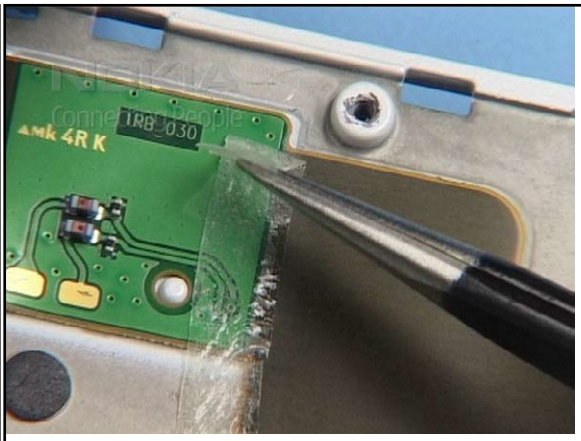


31. Unscrew both torx size 6 screws and discard them.

32. Always use new screws when reassemble.

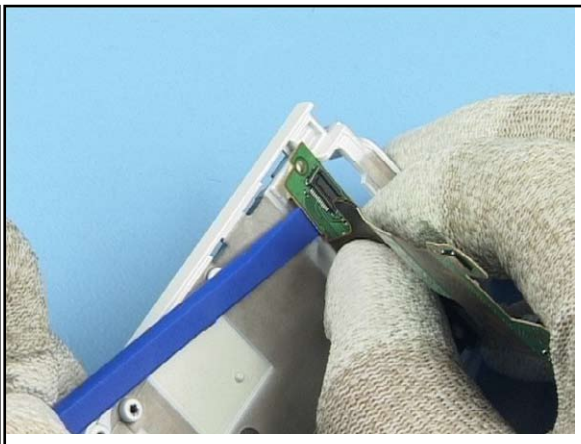


33. Carefully separate the parts, mind the switch of the Flip PWB Module.



34. Peel off the Flip Frame Adhesive Tape with tweezers.

35. Ensure that no residues remain.



36. Gently peel up the glued Flip PWB Module with the SS-93.

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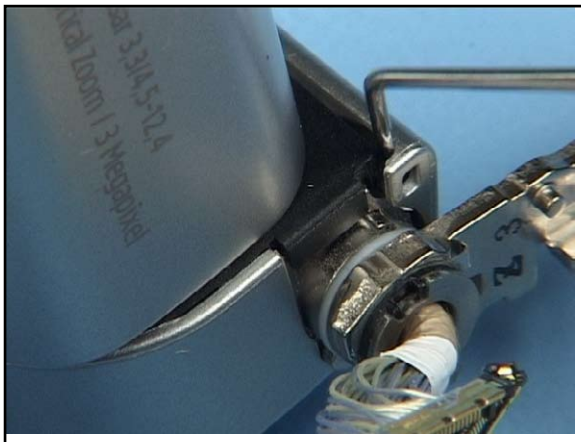

37. Release the latches of the Capture Key Cover Module.

38. Use the SS-93 to unlock all snaps.

39. Now the Capture Key Cover Module can be removed easily.

40. Remove the Capture Key Button, Spring and the Zoom Key Lever.

41. Now the disassembly procedure is complete.

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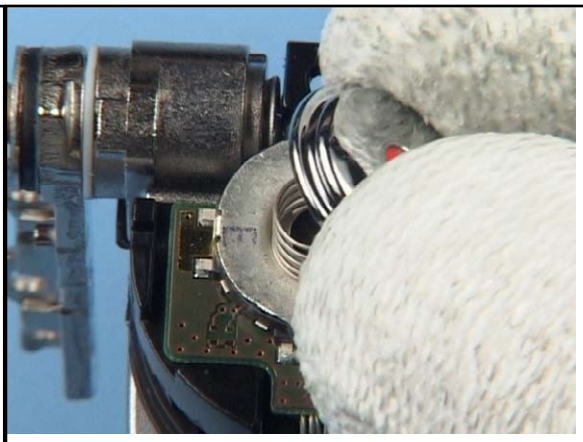
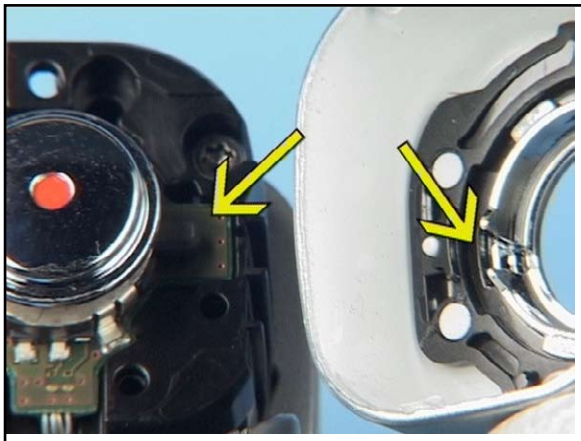
11. UPPER BLOCK - ASSEMBLY

1. Align the Zoom Key Lever into the Capture Key Cover Module as shown.

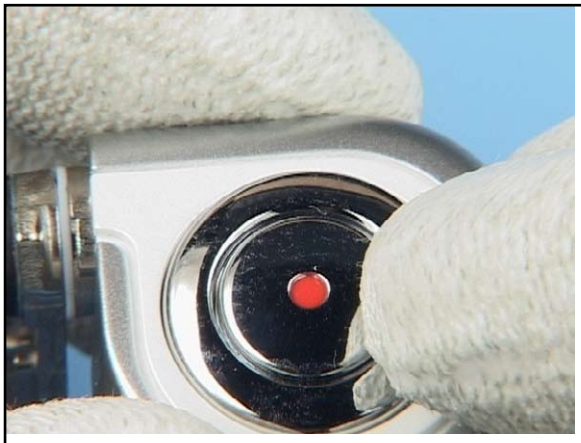


2. Place the spring and the Capture Key Button.



3. Set the recess of the Zoom Key Lever in position shown.

4. Position the Capture Key Cover Module and press it down quickly.



5. Check the functionality of the Zoom Key Lever before continue.

6. Now push the cover into the correct position.

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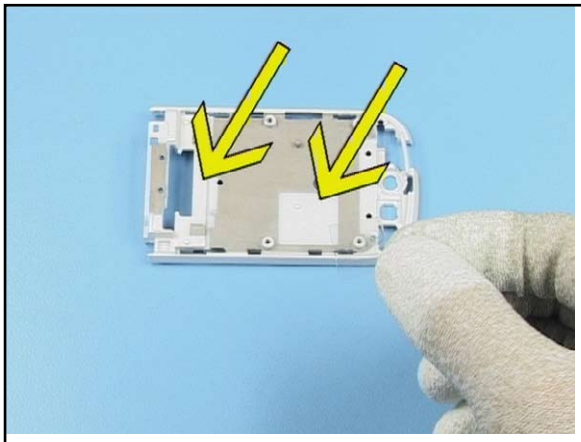
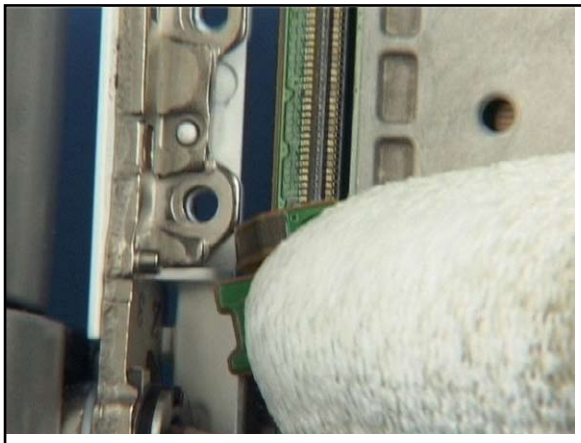


7. Use new adhesives before placing the Flip PWB Module.

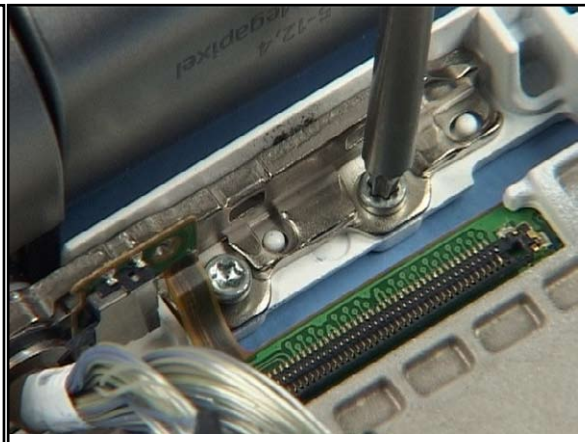
8. Align the Flip PWB Module to the guides and smooth it down evenly.



9. Hold the switch in position shown and align the hinge over the Flip B-Cover.

10. Insert two new screws.

11. Fit the torx size 6 bit and set the correct torque.



12. Apply the torque to both screws.

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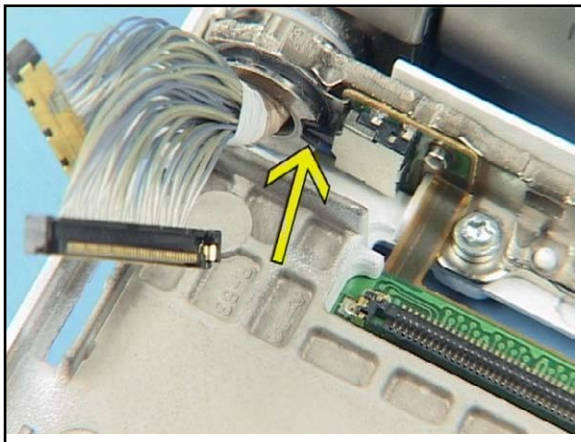
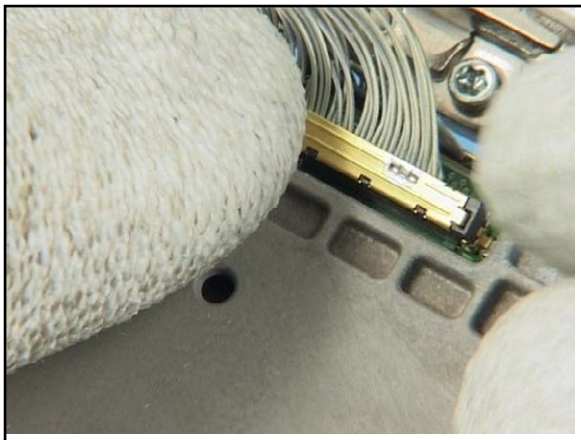


13. Place the switch in position shown.

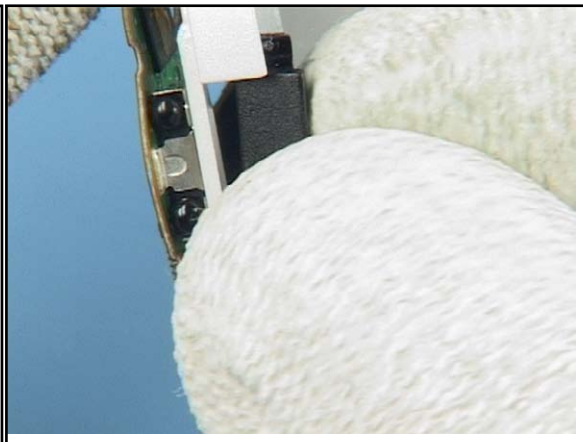
14. Slot the smaller connector through the Flip B-Cover.



15. Close the connector while pushing from behind the Flip PWB Module.

16. Place the Detector holder.

17. Insert the Flip Corner Bumper.



18. And the IR Window.

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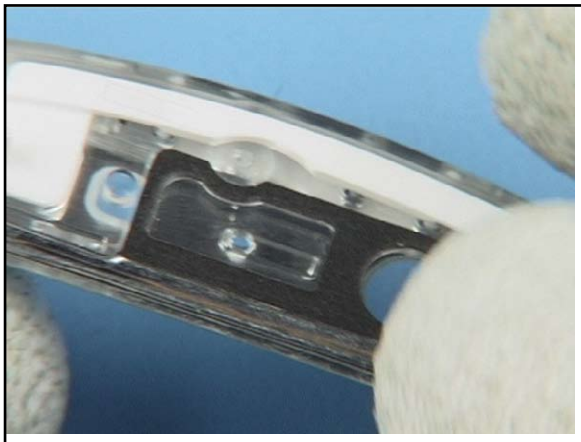
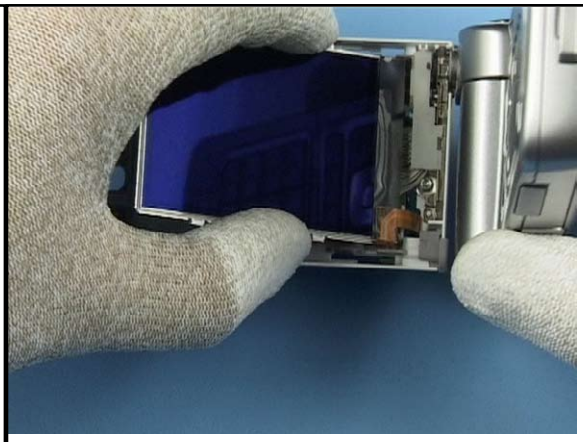
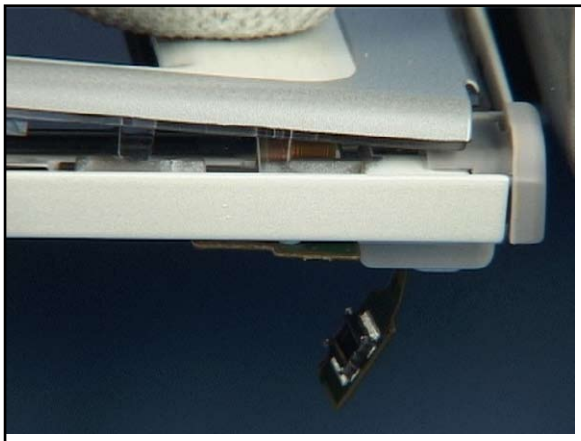


19. Carefully place the Flip Soft Keymat. The snaps are very delicate and can break easily.

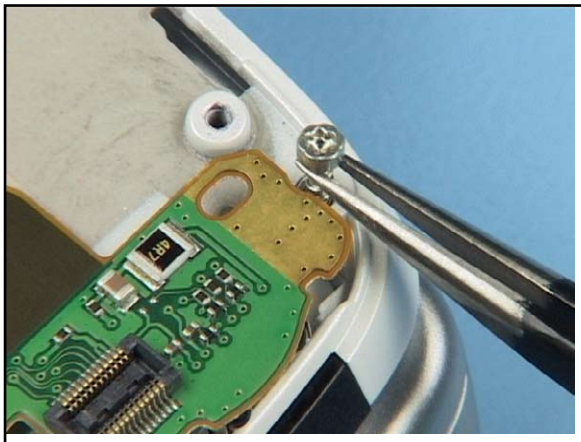


20. Remove the protection film from the Main Display. Slot the flex foil through the Flip B-Cover.



21. Fit the Flip A-Cover Assembly, beginning from the bottom side.

22. Click all snaps into their places.



23. Close the assembly. Insert both screws.

24. Set the correct torque.

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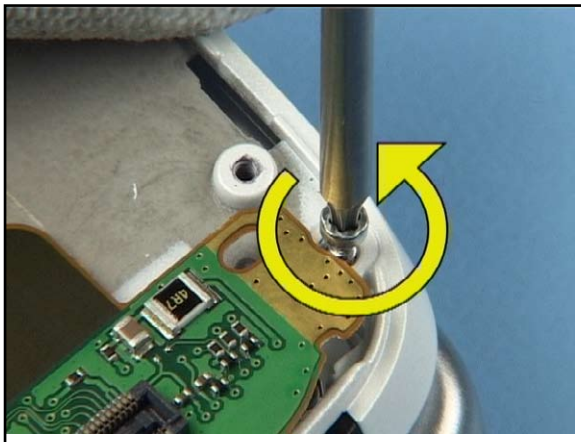
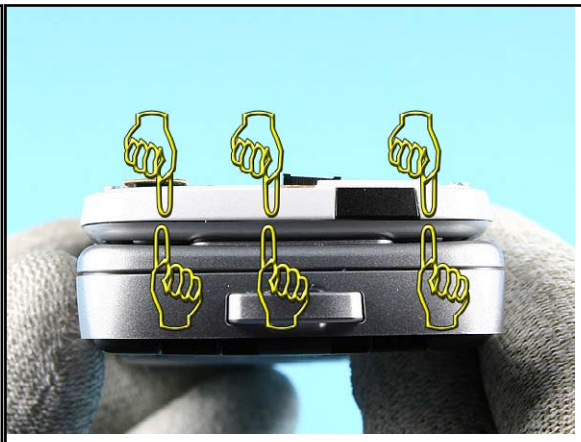
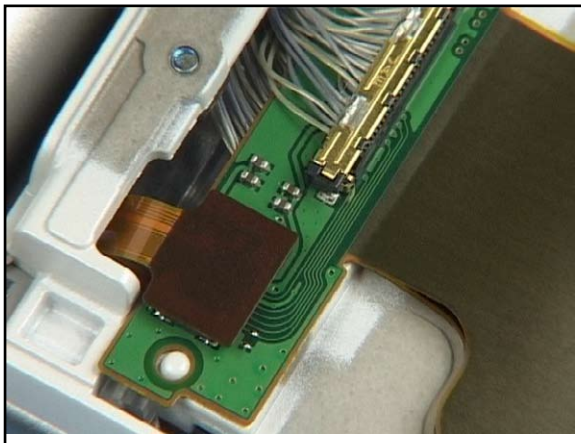


25. To prevent destroying the plastic threats, turn the screws left first, then tighten them with the correct torque.

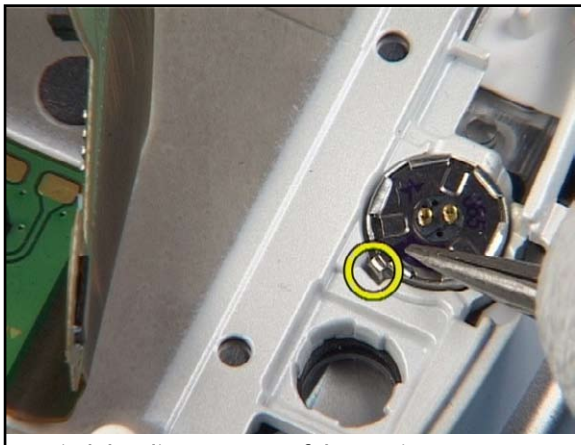


26. Check if there is no gap remaining between Flip A-Cover Assy and Flip B-Cover.

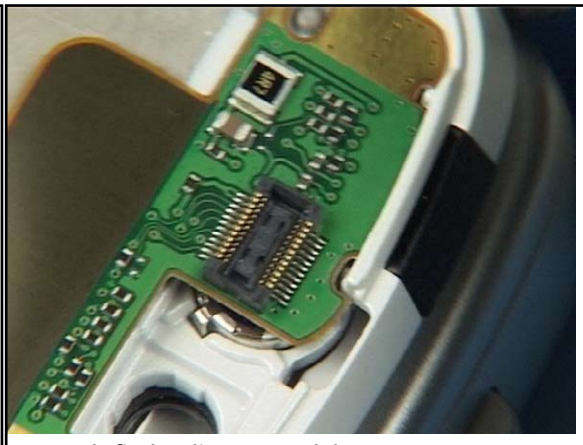


27. Close the connectors.

28. Always use a new Gasket when replacing the Earpiece.



29. Mind the alignment tap of the Earpiece.



30. Gently fit the Flip PWB Module.

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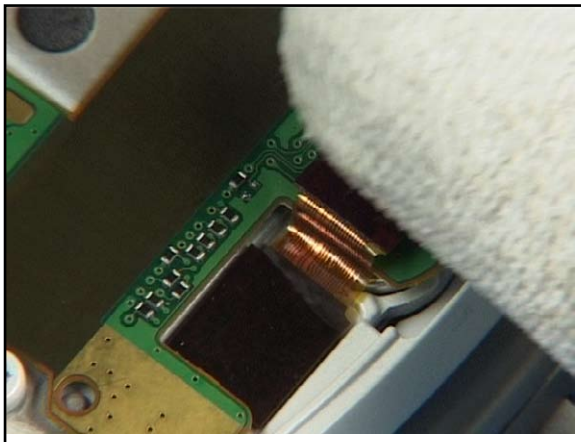
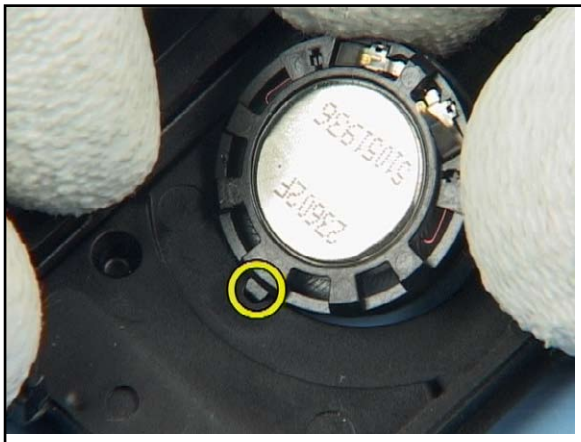


31. Insert the CIF Camera, close the connector.

32. Stick a new Flip Frame Adhesive Tape. Smooth it down evenly and remove the protection film.

32. Use a new Gasket when replacing the IHF Speaker.

33. Mind the spring contacts while handling the IHF Speaker.



34. Note the alignment tap while positioning the IHF Speaker.

35. Insert the Magnet.

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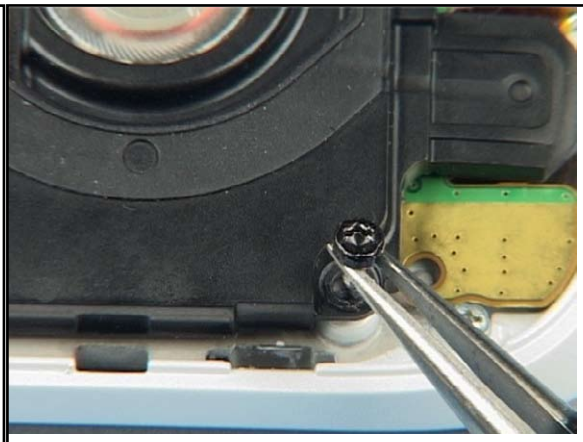
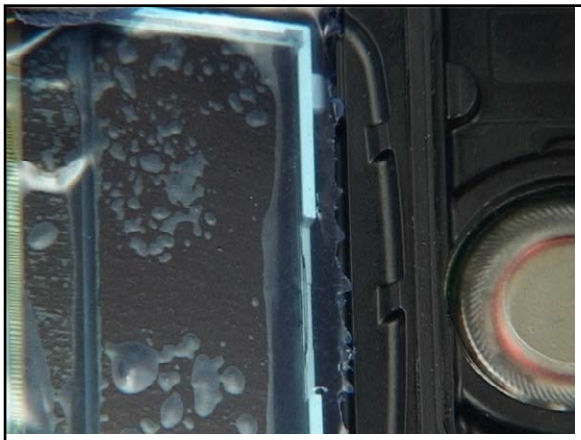
36. Place the Flip Frame, mind the correct positioning.



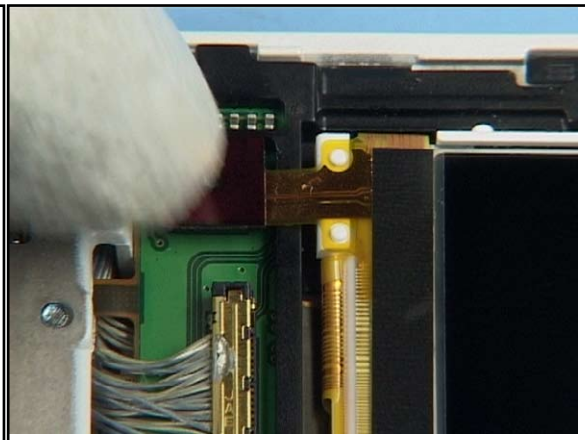
37. Insert the screws.

38. Set the correct torque.

39. Tighten the four screws.



40. Insert the SUB Display.



41. Close the connector.

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42. Place the Flip C-Cover, beginning from the top.

43. Push it down evenly.

44. Insert the screw.

45. Tighten it with the correct torque.

46. Cover the Main Display with a plastic film.

47. Place a new Sub Display Window, smooth it down evenly.

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12.LOWER BLOCK - DISASSEMBLY

1. Needed tools: The SRT-6, the SS-93, metal tweezers, a dental pic, the torque driver with a torx plus and a torx size 6 bit, a torx plus and a torx driver size 6 and a DC plug.

2. Cover all windows with a plastic film. Remove the battery if it is inserted.

3. Carefully pry open the Bezel S60 with the SRT-6 and remove it. Do not use it again.

4. Lever out the Keymat S60.

5. Release the adhered Logo Label with the SRT-6.

6. Carefully lift up the glued in Bezel ITU. Do not use it again.

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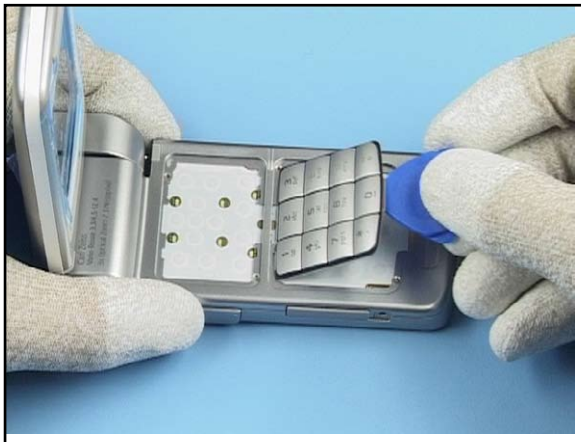
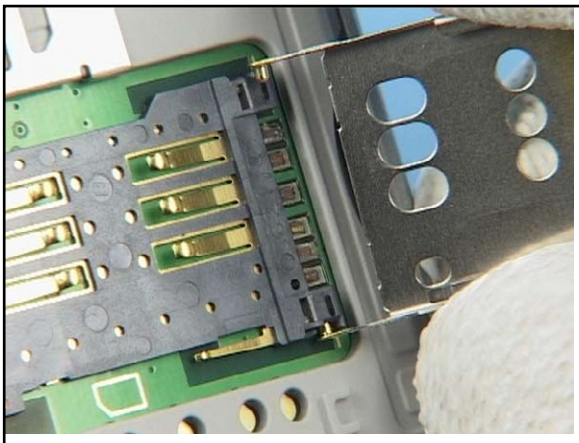


7. Remove the Keymat.



8. Open the SIM Flap and remove it as shown.

9. Remove the six torx plus size 6 screws in the order shown.

10. Carefully pry open the snaps of the Grip A-Cover with the SS-93.

11. Separate the Grip B-Cover.

12. Push out the SD Bung Painted.

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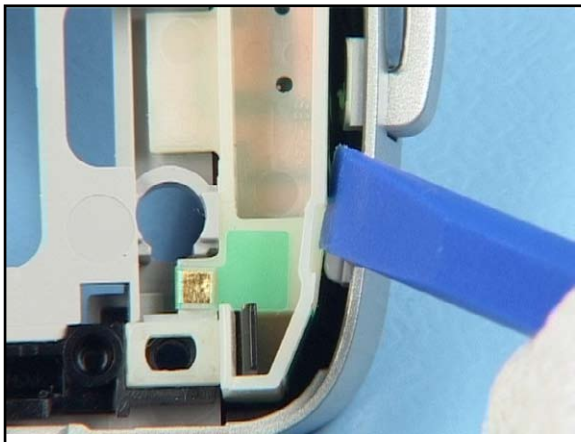
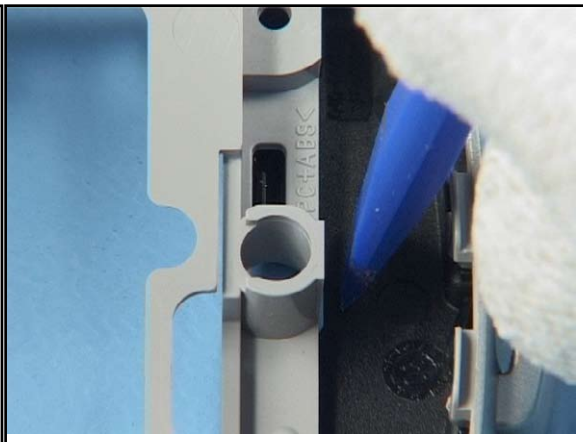
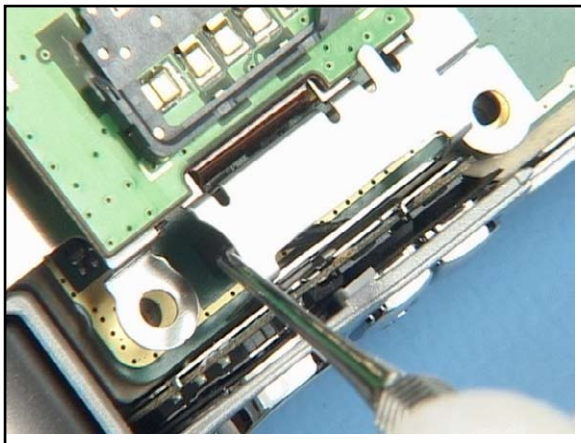


13. Ease out the Antenna Assy with the SS-93 carefully and remove it. The parts can be separate.

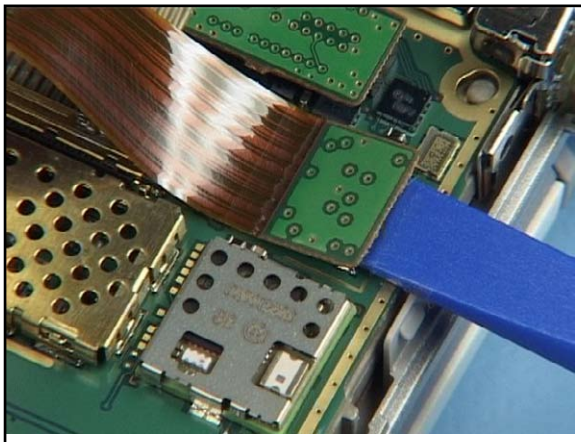


14. Hold down the Antenna Cover while lifting the Grip B-Cover.

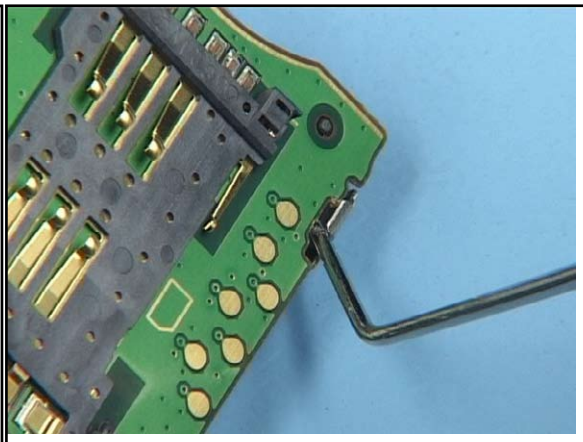


15. Carefully release the metal latches of the SDSIM Support Frame with the dental pic on both sides.

16. Lift up the SDSIM PWB Module.



17. Disconnect the Flex foil connector.



18. Bend out the metal latch as shown.

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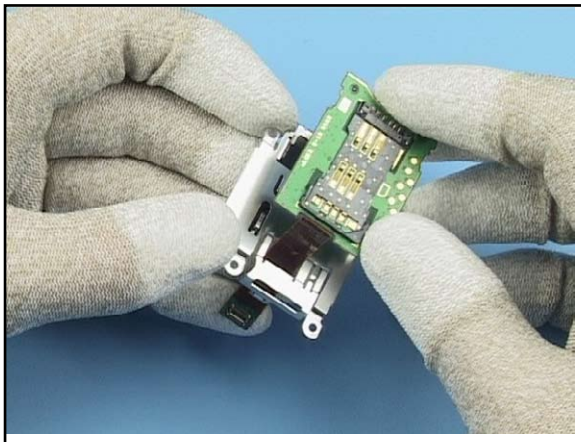
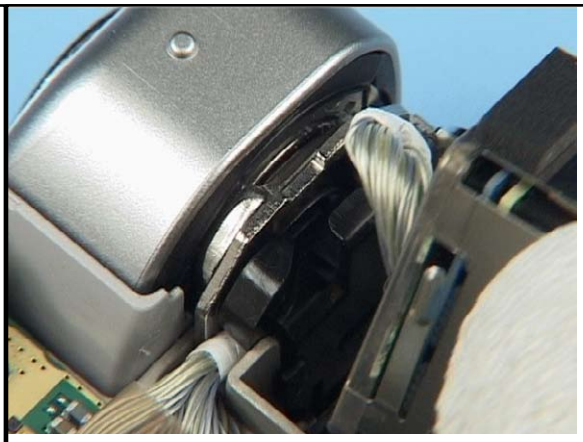
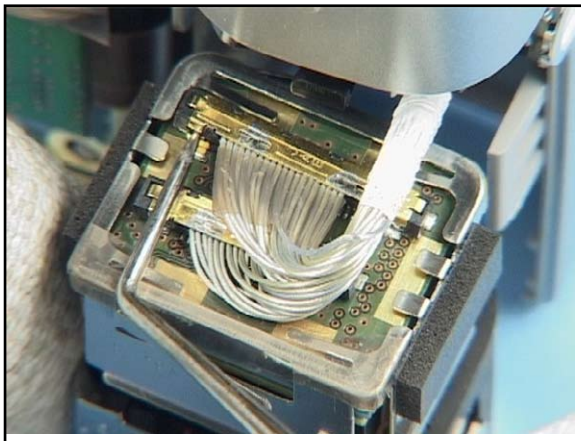


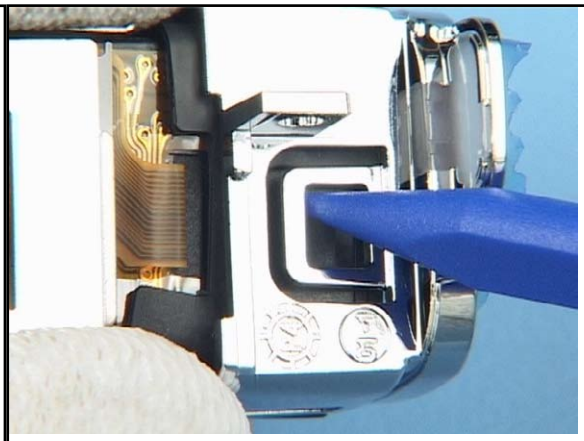
19. Separate the SDSIM PWB.



20. Carefully lift out the Camera unit, mind that the coax cables are still connected.

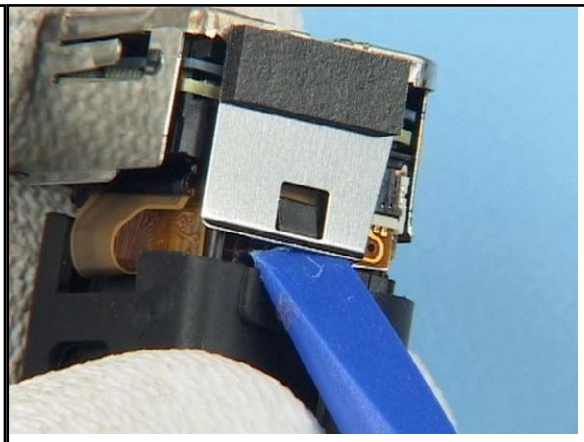


21. Carefully lever out the connectors as shown with the dental pic.



22. Unlock both latches of the Camera Bezel Assembly. These clips are very delicate and can be broken easily.

23. Remove the Camera Bezel Assembly.



24. Unlock the metal latches of the Camera Shield Frame Assembly.

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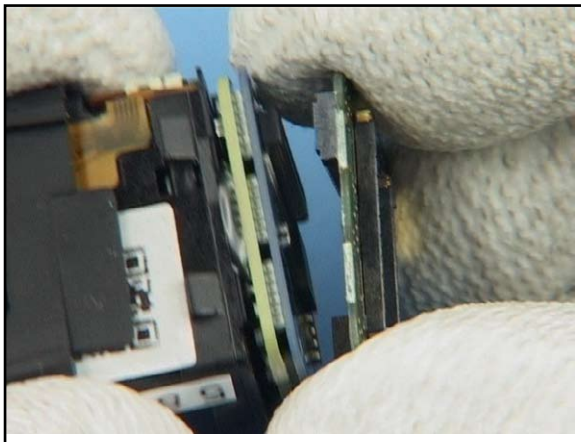
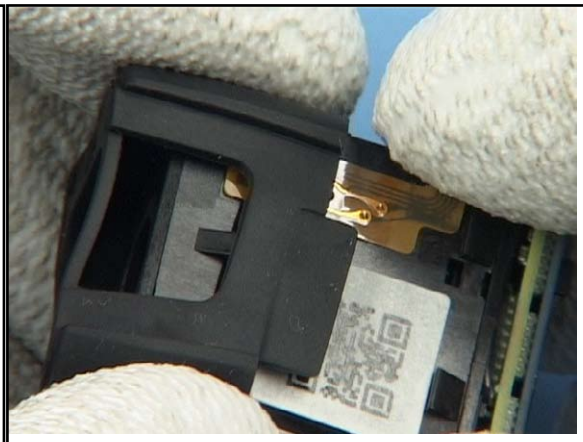
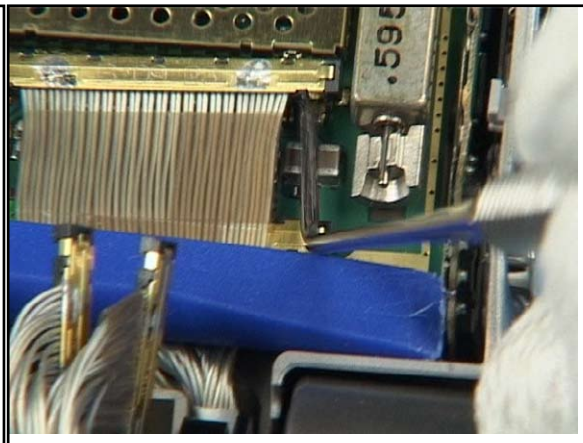


25. Remove the Camera IF PWB Module.



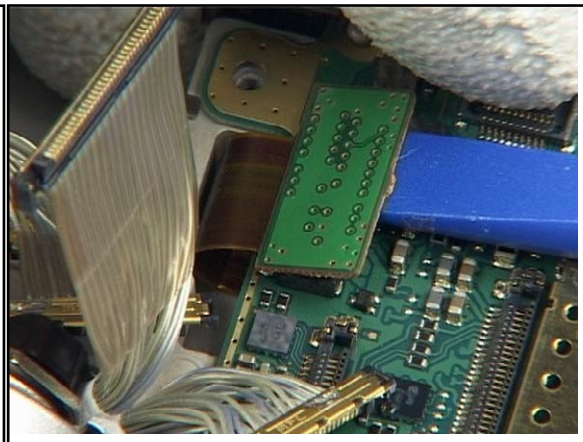
26. Peel up the Camera Cushion.

27. Cover the lens with a plastic film.



28. Gently pry open the connector evenly with the dental pic as shown.

29. Also open the smaller connector.



30. Disconnect the flex foil connector evenly.

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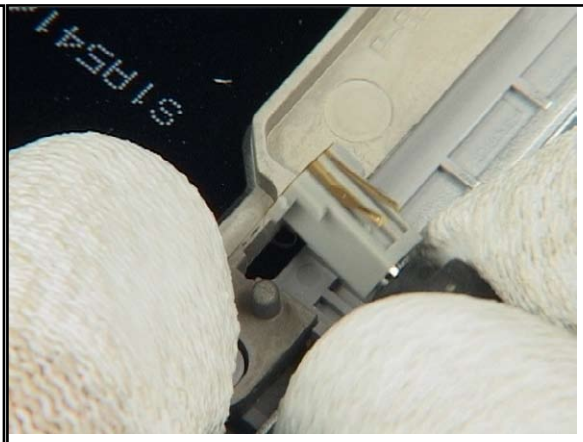
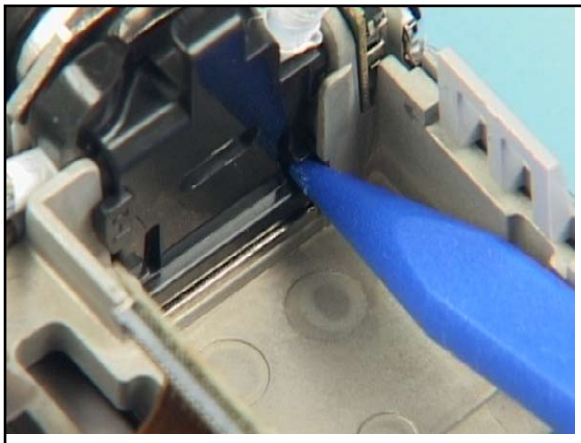
31. The POP Port Bung can now be removed.

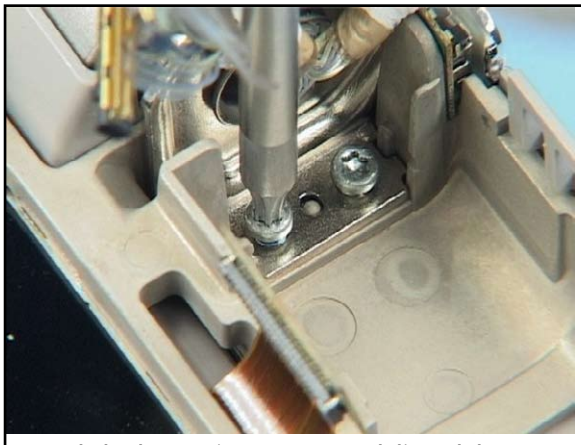


32. Use the DC Plug to remove the DC Jack.



33. Gently unlock both snaps of the Harness Holder Grip.

34. Lever it out with the SS-93.



35. Undo both Torx size 6 screws and discard them.

36. Always use new screws when reassemble.

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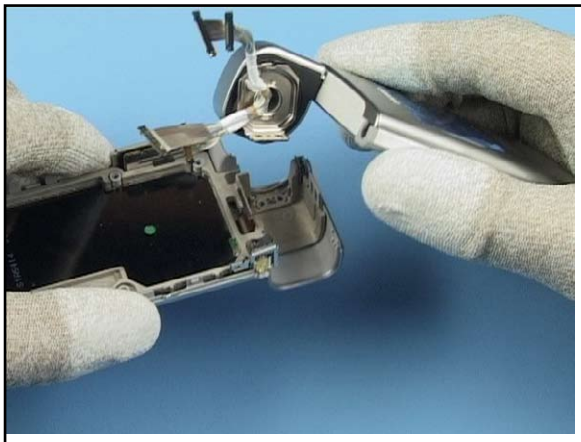
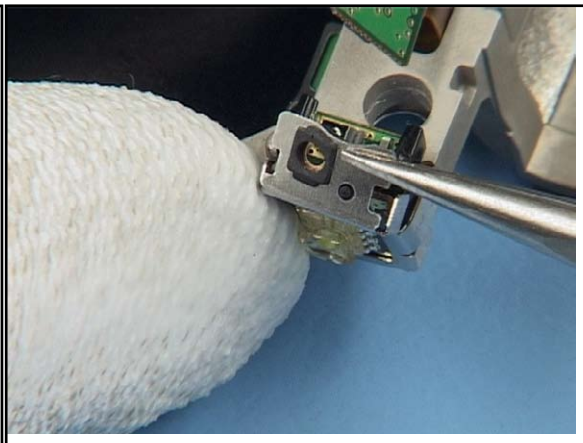


37. Bring the unit into position shown and separate the parts.

38. Unlock the snaps of the Grip A-Cover and separate the parts.

39. Remove the Side Keys.



40. Gently bend open the Mic Clip. Never touch the surface of the microphones.

41. The disassembling procedure is now complete.

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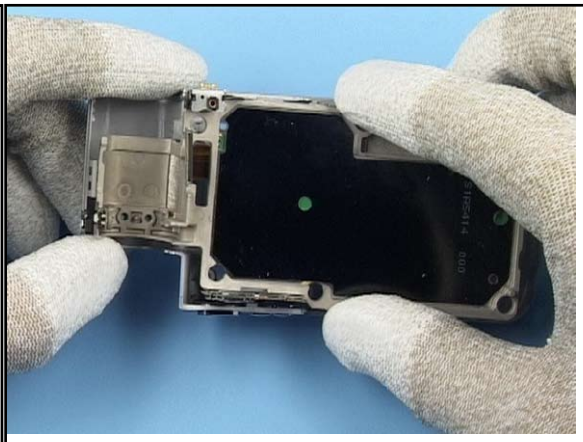
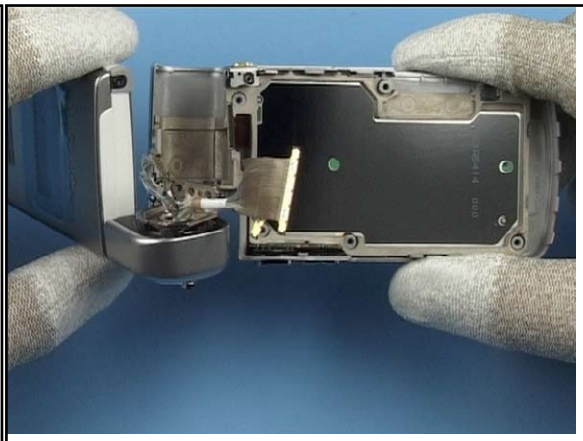
13.LOWER BLOCK - ASSEMBLY

1. Place the Mic Clip, do not touch the microphones.

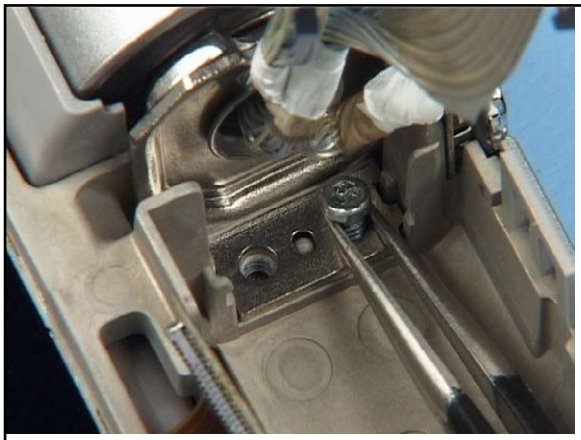


2. Insert the Side Keymat.

3. Place the UI Frame into the Grip A-Cover.



4. Bring the parts in position shown.



5. Insert the new torx size 6 screws.

6. Set the correct torque.

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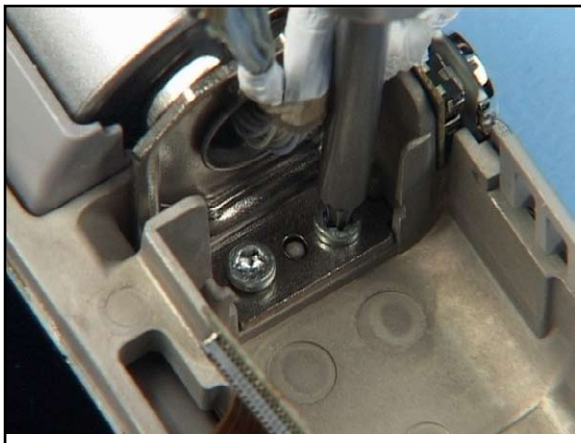
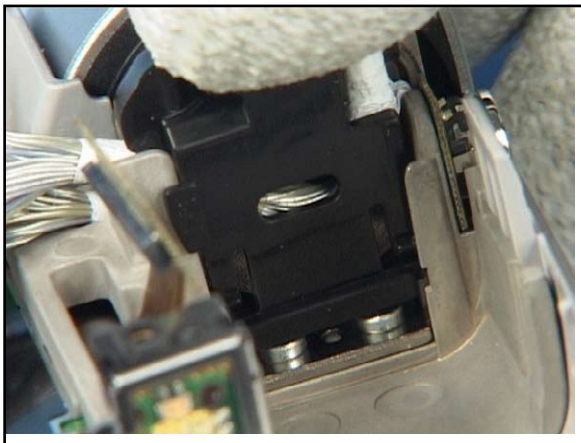
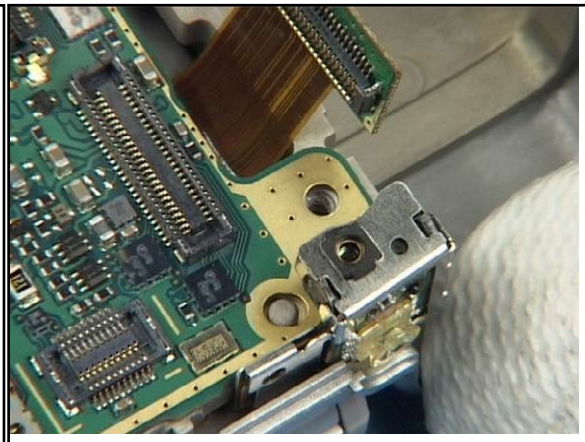


7. Apply the correct torque to both screws.

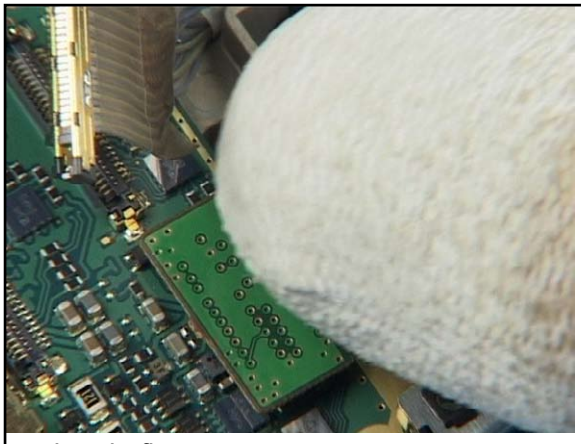


8. Insert the Harness Holder Grip.

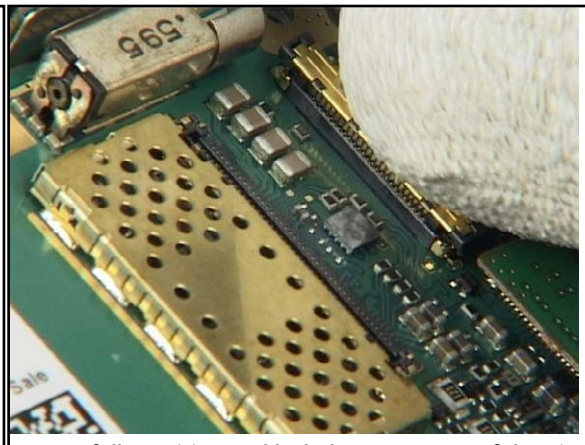
9. Place the DC Jack into its compartment.



10. Mind the guides while placing the Engine Module.



11. Close the flex connector.



12. Carefully position and lock the connectors of the Hinge cables.

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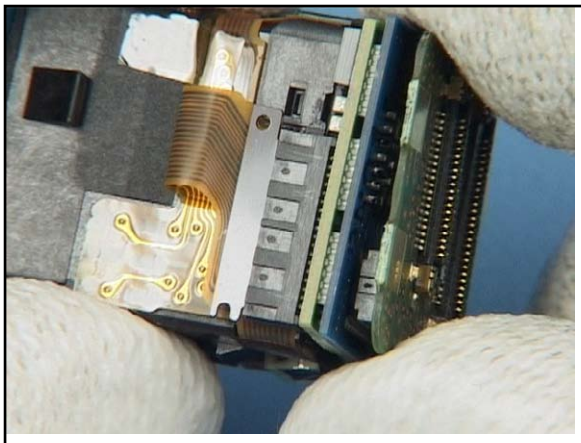
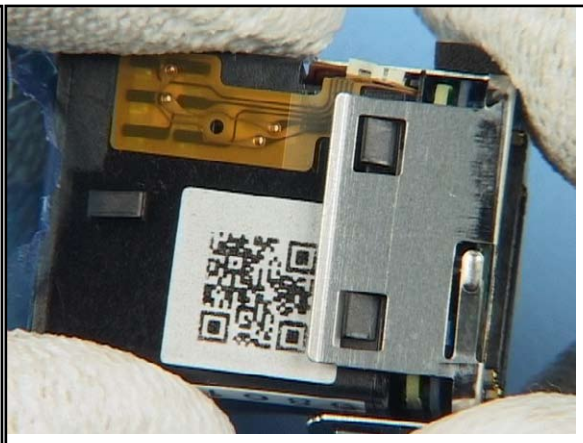
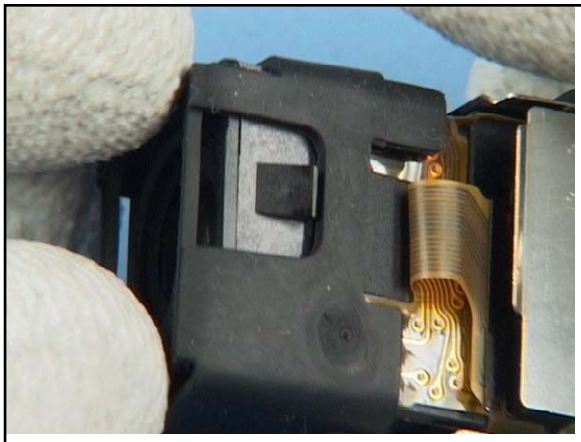


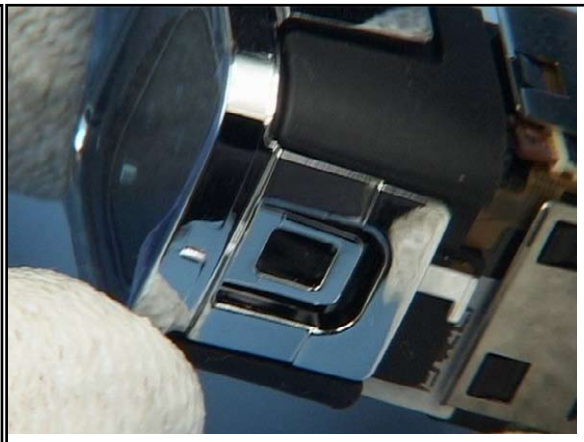
13. Connect the Camera IF Module.



14. Place the Camera Shield Frame Assembly.

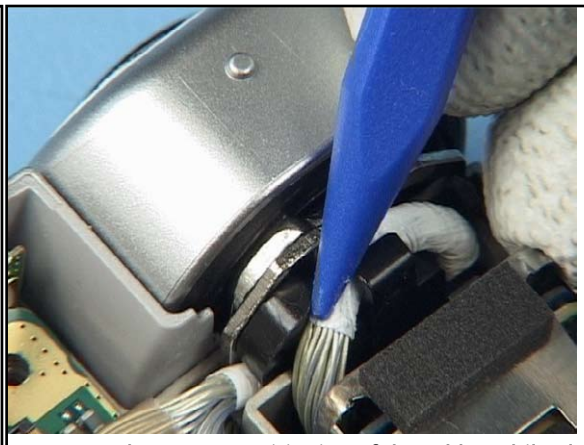


15. Shift the Camera Cushion into its correct position.



16. Insert the assembly into the Camera Bezel Assembly.

17. Now connect the Camera Module. Mind the correct positioning of the connectors.



18. Ensure the correct positioning of the cables while placing the Camera Module into its housing.

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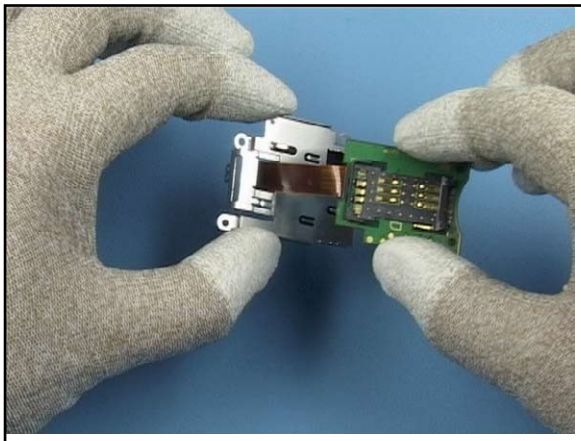
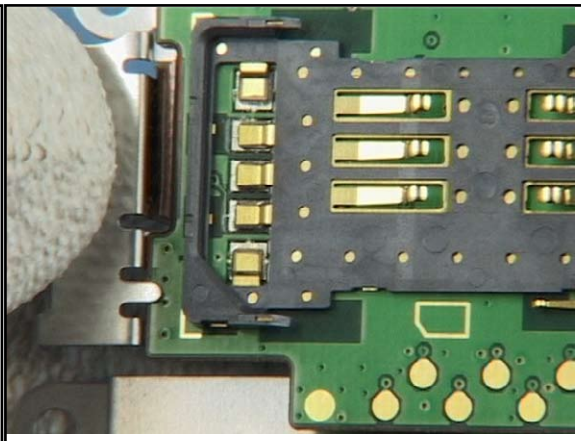
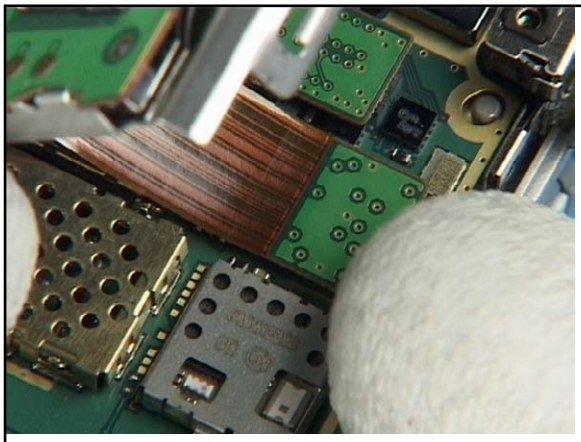


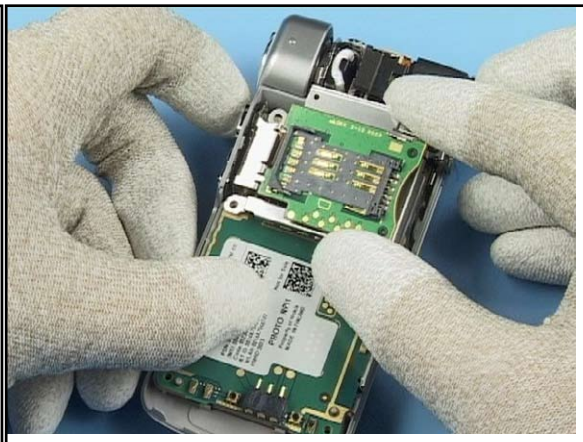
19. Slot the flex foil through the SDSIM Support Frame.



20. Position the SDSIM PWB as shown.

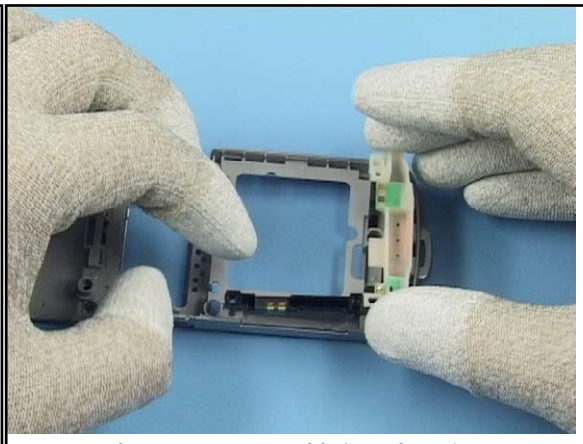


21. Close the flex foil connector.



22. Place the SDSIM PWB Module and click the latches into their places.

23. Click the Antenna Cover into its place.



24. Insert the Antenna Assembly into the Grip B-Cover.

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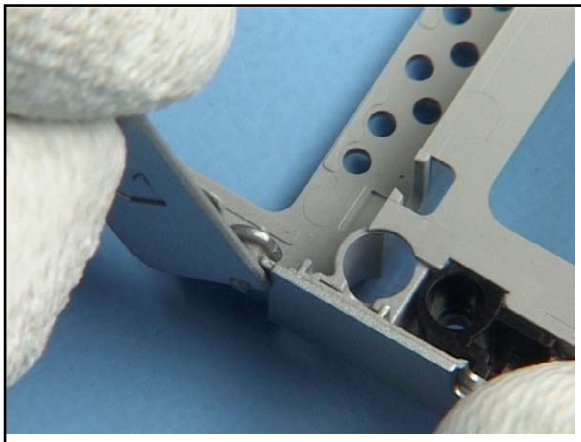
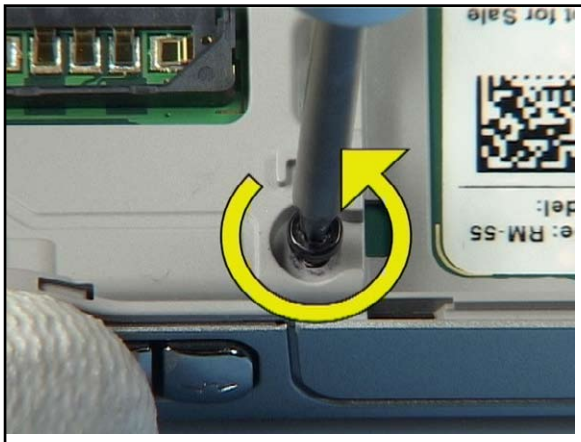


25. Place the SD Bung Painted.

26. Position the Grip B-Cover over the Assembly.

27. Insert the screws.

28. Set the correct torque.



29. To prevent destroying the plastic threads, first turn the screws left first.

30. Then tighten them in the correct order shown.

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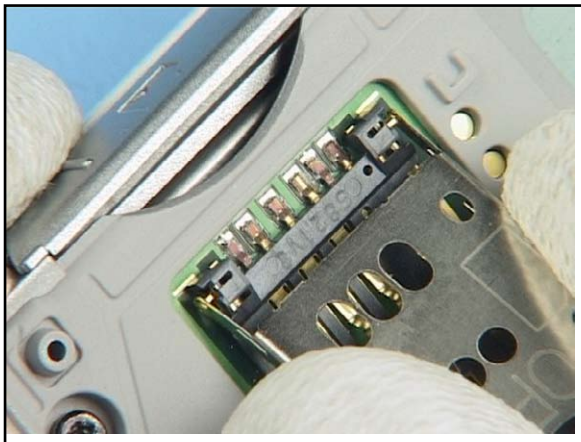

31. Position the SIM Flap.

32. Place the Grip C-Cover Assembly, beginning from the bottom.

33. Insert the Keymat ITU.

34. Use a new Bezel ITU to fix the keymat.

35. Smooth it down evenly.

36. Place a new Logo Label.

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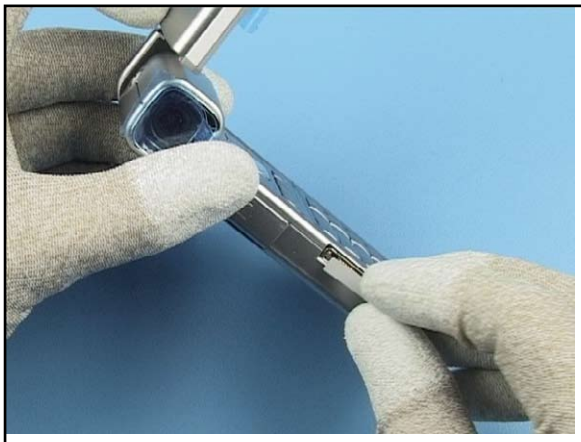
37. Position the Keymat S60.

38. And fix it with a new Bezel S60.



39. Complete the Assembly with the POP Port Bung Painted.

40. At least check the windows for cleanness.

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14. GONOGO TEST

To test the Camera, Bluetooth and IRDA functionality refer to the N93 User`s guide.

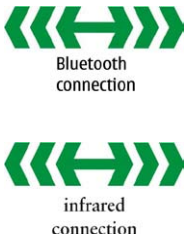
The User´s Guide is available on www.nokia.com.

Before starting the GoNoGo test, check that camera window is clean. If not, clean the window with cloth.

Bluetooth test
You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.
Make sure that Bluetooth is activated in the reference unit. The distance of the devices should be not more than 5m from each other.

Infrared test
You need another infrared device (e.g. 6230) to do a GoNoGo test. The infrared windows of the devices must be directed to each other and should have a distance of approximate 15 cm. Make sure that infrared is activated in receiver device.

Warning: Do not point the IR (infrared) beam at anyone's eye or allow it to interfere with other IR devices. This device is a Class 1 Laser product.



Reference unit, Bluetooth /infrared activated

Test unit

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15. BATTERY TEST

A battery tester lets you test the capacity of NOKIA batteries.

Please refer to the actual information on NOKIA Online.

http://www.astratec.co.uk/

http://www.cadex.com/

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